CLAIMS

1. A fuel cell power generation system equipped with a fuel reforming device and a fuel cell body, comprising:

raw gas feeding means for feeding into said fuel reforming device at least one raw gas among a burner exhaust gas discharged from a heating burner of said fuel reforming device, exhaust air discharged from a cathode of said fuel cell body, and air from outside said system; and

inert gas formation means including an oxidizable and reducible oxygen adsorbent which adsorbs oxygen in said raw gas to remove oxygen from said raw gas and generate an inert gas.

2. The fuel cell power generation system according to claim 1, characterized by:

adsorbent reduction means for reducing said oxygen adsorbent which has adsorbed oxygen.

3. The fuel cell power generation system according to claim 1 or 2, characterized in that

said oxygen adsorbent is disposed in at least one location among a location in said raw gas feeding means, a location between a reforming catalyst layer and a CO conversion catalyst layer provided in said fuel reforming device, a location upstream of said reforming catalyst

layer within said fuel reforming device, and a location in said reforming catalyst layer provided in said fuel reforming device.

4. The fuel cell power generation system according to any one of claims 1 to 3, characterized in that

said oxygen absorber comprises at least one of chromium (Cr), manganese (Mn), iron (Fe), cobalt (Co), nickel (Ni), copper (Cu), and zinc (Zn).

5. A fuel cell power generation system equipped with a fuel reforming device and a fuel cell body, comprising:

raw gas feeding means for feeding into said fuel reforming device at least one raw gas among a burner exhaust gas discharged from a heating burner of said fuel reforming device, exhaust air discharged from a cathode of said fuel cell body, and air from outside said system; and

inert gas formation means including an oxygen absorbing solution which absorbs oxygen in said raw gas to remove oxygen from said raw gas and generate an inert gas.

6. The fuel cell power generation system according to claim 5, characterized in that

said oxygen absorbing solution is an Na_2SO_3 solution.

7. A fuel cell power generation system equipped with a fuel reforming device and a fuel cell body, including inert gas formation means comprising:

carbon dioxide recovery means including an aqueous amine solution which is fed with at least one raw gas among an anode exhaust gas discharged from an anode of said fuel cell body, and a reformed gas formed by reforming in said fuel reforming device, to absorb carbon dioxide in said raw gas; and

carbon dioxide feeding means adapted to heat said aqueous amine solution of said carbon dioxide recovery means, thereby releasing carbon dioxide from said aqueous amine solution, and feed said carbon dioxide into said fuel reforming device.

8. The fuel cell power generation system according to claim 7, further comprising:

raw gas recycling means for supplying said raw gas, from which carbon dioxide has been recovered by said carbon dioxide recovery means, to said burner of said fuel reforming device.

9. The fuel cell power generation system according to claim 7 or 8, further comprising:

moisture recovery means for recovering moisture from said carbon dioxide fed into said fuel reforming

device; and

moisture recycling means for returning said moisture, which has been recovered by said moisture recovery means, to said aqueous amine solution of said carbon dioxide recovery means.

10. A method for operating the fuel cell power generation system according to any one of claims 1 to 4, characterized by:

forming said inert gas by said inert gas formation means, and removing residual matter, which has remained within said fuel reforming device, with said inert gas for inert gas purging, in stopping an operation for power generation.

11. The method for operating the fuel cell power generation system according to claim 10, characterized by:

reducing said oxygen adsorbent of said inert gas formation means with a reformed gas formed by reforming in said fuel reforming device, or an anode exhaust gas discharged from an anode of said fuel cell body, thereby performing regeneration of said oxygen adsorbent of said inert gas formation means.

12. The method for operating the fuel cell power generation system according to claim 11, characterized

by:

performing said regeneration in carrying out an operation for power generation.

13. A method for operating the fuel cell power generation system according to claim 5 or 6, characterized by:

forming said inert gas by said inert gas formation means, and removing residual matter, which has remained within said fuel reforming device, with said inert gas for inert gas purging, in stopping an operation for power generation.

14. A method for operating the fuel cell power generation system of any one of claims 7 to 9, characterized by:

recovering carbon dioxide in said raw gas by said carbon dioxide recovery means of said inert gas formation means during an operation for power generation; and

actuating said carbon dioxide feeding means of said inert gas formation means to form an inert gas from said aqueous amine solution, thereby removing residual matter, which has remained within said fuel reforming device, for inert gas purging, in stopping the operation for power generation.

15. The method for operating the fuel cell power

generation system according to claim 14, characterized by:

supplying said raw gas, from which carbon dioxide has been recovered by said carbon dioxide recovery means, to said burner of said fuel reforming device during the operation for power generation.

16. The method for operating the fuel cell power generation system according to claim 14 or 15, characterized by:

recovering moisture from said carbon dioxide, which is fed into said fuel reforming device by said carbon dioxide feeding means, and returning said moisture to said aqueous amine solution of said carbon dioxide recovery means, in stopping the operation for power generation.

17. The method for operating the fuel cell power generation system according to any one of claims 10 to 16, characterized by:

removing said residual matter within said fuel reforming device with steam before purging an interior of said fuel reforming device with said inert gas.

18. The method for operating the fuel cell power generation system according to claim 17, characterized by:

removing said residual matter within said fuel reforming device with steam;

then flowing only air to said burner of said fuel reforming device to cool said fuel reforming device; and

then purging said interior of said fuel reforming device with said inert gas.

19. The method for operating the fuel cell power generation system according to claim 17 or 18, characterized in that

said steam for removing said residual matter within said fuel reforming device has a fuel gas incorporated therein, said fuel gas being in an amount necessary and sufficient to prevent oxidation within said fuel reforming device.

20. The method for operating the fuel cell power generation system according to any one of claims 10 to 19, characterized by:

actuating only said burner of said fuel reforming device to heat and raise a temperature of said fuel reforming device;

feeding steam to said fuel reforming device during a rise in the temperature of said fuel reforming device, said steam containing a necessary and sufficient amount of a fuel gas to prevent oxidation within said fuel reforming device; and

supplying said fuel gas, in a necessary amount according to actuation of said fuel cell body, after completion of the rise in the temperature of said fuel reforming device, to start an operation for power generation.